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SCREW-WORM SURVEY IN WESTERN UNITED STATES, 1950<sup>1/</sup>

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The annual survey of screw-worms, Callitroga americana (C. & P.), conducted by the Bureau of Entomology and Plant Quarantine in cooperation with Federal and State specialists was continued during 1950 in the western part of the United States usually affected. Early scouting was done in Texas, New Mexico, Arizona, and California to establish the winter-survival area of this insect. This fly is not known to overwinter in any other State west of the Mississippi, except possibly, and certainly only very rarely, in southwestern Louisiana. Later in the season the survey was extended to Kansas, Nebraska, South Dakota, Minnesota, Iowa, Illinois, Indiana, Missouri, Arkansas, Oklahoma, and Louisiana.

The survey to determine the winter-survival area revealed that the fly survived the unusually mild winter in approximately 132 counties in Texas and also in at least 3 counties in southwestern New Mexico, 9 counties in southern Arizona, and apparently 3 counties in southern California. The area in which the fly survived the winter extended from Houston, Tex., on the east to San Diego, Calif., on the west. In Texas the winter-survival area extended as far north as Wilbarger, Wichita, and Clay Counties on the Texas-Oklahoma border. The winter survival of the fly to the Oklahoma border extended the area at least 300 miles farther north than during any previous winter on record, and indicated a possible early and severe screw-worm year for 1950. Therefore, the United States Department of Agriculture on April 21 issued a press release warning livestock owners that the situation might become serious unless they promptly treated all screw-worm-infested animals. In order to retard the spread of screw-worms into uninfested

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<sup>1/</sup> Presented at the meeting of the Southwestern Branch of the American Association of Economic Entomologists at Dallas, Tex., March 1-2, 1951.

portions of our country, entomologists of the Bureau urged that stockmen treat all wounds, infested or not, especially in animals that had been shipped from areas where screw-worms might be present, and postpone dehorning, branding, marking, castrating, and docking, all of which predispose animals to screw-worm attack, until after the warmer months of the year.

During July, August, September, and October the screw-worm survey was extended to States in the western region which usually become infested either as a result of the natural migration of the fly during each season or the introduction of infested animals. Each year since the screw-worm survey was started in 1943 serious infestations have resulted from the shipping of infested animals into uninfested areas. One such infestation occurred in South Dakota in 1949, when infested cattle were introduced early in the season.

In each State surveyed the Bureau scouts contacted the State Veterinarian or the State Entomologist or, if they were not available, their assistants, the State Director of Extension, the State Extension specialists, and particularly the county agent and local veterinarians in all counties surveyed. In addition, at least a few representative livestock owners in each county surveyed were interviewed in order to determine whether the screw-worm infestations reported were really screw-worms or merely blowflies or secondary species of wound-invading maggots.

Because the survey in most of the States was made before the close of the screw-worm season, it was not possible to obtain a complete picture of the situation. Subsequent reports were kindly furnished at the end of the year by State and Extension personnel and are included in the following brief report for each State.

Arizona -- The screw-worm overwintered in all of the southern counties in Arizona. By midsummer infestations were present in all counties in the State. Infestations in less than 1 percent of the domestic-animal population were reported in all the southern counties. Livestock owners in Yuma, Pima, and Pinal Counties reported that screw-worms had been troublesome the year round. In the northern part of the State infestations were reported to be light and present only during the summer season.

Arkansas -- Light screw-worm infestations were found in Madison and Newton Counties. Heavier infestations, in 1 to 1.5 percent of the total animal population, were found in Stone, Independence, White, Jefferson, Grant, Drew, Chicot, and Ashley Counties. All these counties reported that the heaviest infestations had occurred during September. The incidence in Chicot County was the heaviest reported

in the State and exceeded 2 percent of the domestic-animal population during the peak of the season. Reports received by Extension specialists indicated that screw-worms were common before the end of the season in nearly all counties in southwestern Arkansas.

California -- Screw-worm infestations involving at least 0.1 percent of the total domestic-animal population were found in Imperial, Riverside, San Diego, Kern, Stanislaus, and Tulare Counties. Scattered to light infestations were found in Solano, Yolo, and Sonoma Counties. County agents, veterinarians, and livestock owners in Riverside and Imperial Counties all reported screw-worm activity the year round. An early-season survey showed that the screw-worm fly survived the winter in both Riverside and Imperial Counties and apparently also in San Diego.

Illinois -- Light infestations of the screw-worm were found in Monroe, Jackson, Johnson, and Union Counties in August. Because the survey covered only a portion of the State, it is probable that some of the other counties were also infested.

Indiana -- Scattered to light infestations were found early in September in Owen, Greene, Lawrence, Daviess, Pike, Ripley, Tippecanoe, Bartholomew, Jennings, Washington, and Decatur Counties. Tippecanoe, Ripley, and Decatur Counties were the most northeastern counties found infested during this survey.

As a result of the previous year's experience, when a light to moderate outbreak covered most of the southern half of the State, livestock owners checked the spread and the abundance of this pest by using smear 62 on practically all cuts and other predisposing wounds as a prophylactic treatment. This commendable preventive practice probably contributed greatly to the low screw-worm incidence in Indiana in 1950.

Iowa -- The survey made in August, mostly in the southern portion of the State, showed scattered to light screw-worm infestations in Audubon, Des Moines, Hamilton, Henry, Jefferson, Shelby, and Wapello Counties. Subsequent reports received from the State veterinarian and from the State entomologist extended the counties definitely known to be infested to include Monroe, Plymouth, and Story. In addition, the State Entomologist, H. M. Harris, received reports of the presence of screw-worms in 21 other counties in Iowa. Dr. Harris stated that some of these reports may actually have applied to wool maggots.

Kansas -- Some of the counties in the eastern and south-central parts of the State were surveyed during the latter part of July. Light infestations were found in Eutler, Kingman, McPherson, Neosho, Pratt, Rice

and Saline Counties. In the southwestern portion of the State, which was surveyed later in the season, light infestations were present in Finney, Ford, Ness, Scott, and Seward Counties.

E. J. Frick, head of the Department of Surgery and Medicine, School of Veterinary Medicine, Kansas State College, stated that their clinic had screw-worm-infested animals brought in from Jackson, Pottawatomie, Clay, Riley, Washington, Geary, Dickinson, Wabaunsee, Shawnee, Morris, and Marion Counties.

The final data for Kansas, as given in county agents' narrative reports at the end of the year, were compiled by Dell E. Gates, Extension entomologist. This report lists 59 counties as lightly infested and 21 additional counties more heavily infested than normally expected. Only 23 of the 105 Kansas counties were reported not infested during the 1950 season, and nearly all of them were located in the northern half of the State. L. C. Williams, Director of Extension, stated that "the State records indicate approximately twice as many animals were treated for screw-worms in 1950 as in 1949."

Louisiana -- Infestations ranging from 1 to 1.75 percent of the total domestic-animal population were present late in October in Claiborne, Eienville, Richland, Caldwell, Winn, Natchitoches, Grant, St. Landry, Lafayette, Jefferson Davis, and Calcasieu Parishes. All these parishes reported infestations of 2 percent or more at the peak of the season, which occurred in the latter part of August and early in September.

A report by the State Veterinarian, F. B. Wheeler, who had contacted the agents in 31 parishes well scattered throughout the State, indicated that screw-worm infestations in all but one of these parishes were heavier in 1950 than in several previous years. Only St. Tammany Parish reported no infestations during the season.

Minnesota -- A survey in a few counties in Minnesota early in August revealed no screw-worm infestations, except in one dog which was imported into Watonwan County from Texas in June. At the end of the season, according to T. L. Aamodt, State entomologist, two cases of possible infestation were reported from Martin County, one from Steele County, and one from Goodhue County. Dr. Aamodt stated that "no larvae were obtained for identification and confirmation of these cases as due to Callitroga americana was therefore impossible."

Missouri -- The July survey was confined to the more important livestock counties. At that time only Jackson and Vernon Counties were found to harbor infestations of the screw-worm. Other counties reported infestations, but they were found to be other species of blowflies. At the end of the year V. F. Burk, Extension entomologist, submitted

a list of counties reported by county agents as infested with blowfly maggots or screw-worms and the month when the infestation was first noted. This report records the first appearance of either worms or screw-worms in 1 county in March, 10 counties in April, 6 in May, 8 in June, 13 in July, 9 in August, 5 in September, and 3 in October. All infestations reported for June to October were probably due to the true screw-worm, but all those found earlier were thought to be due to other species. Most of the counties reporting infestations are in the western half of the State.

Nebraska -- No infestations were found in the July survey in counties surrounding Omaha, where many cattle and sheep from various western and southern States are constantly received for slaughter. At the end of 1950 E. P. Anderson, State Veterinarian, had received only two reports of screw-worm infestations. According to Jack W. Lomax, Extension entomologist, there were many reports of screw-worms in the southeastern quarter of the State. He stated that "the infestation appeared about mid-August and built up into the first of September. The counties known to have had infestations are Richardson, Pawnee, Gage, Johnson, and Nemaha, with a few of the bordering counties reporting occasional infestations." Reports of screw-worm infestations in northeastern Nebraska were investigated by Extension workers, but were found not to be due to true screw-worms.

New Mexico -- The early survey in this State revealed that the screw-worm survived the winter in Dona Ana, Grant, and Hidalgo Counties and probably also in Luna County. When the State was resurveyed late in September, screw-worm infestations were reported in all counties in the State except those in the northwestern quarter. F. L. Schneider, State veterinarian, stated that only Valencia, McKinley, San Juan, Taos, Rio Arriba, and Sandoval Counties, all in the northwestern part of the State, apparently remained free of screw-worm infestations during 1950.

Oklahoma -- Although the screw-worm survived the winter in three Texas counties bordering Oklahoma, no evidence was found that the fly overwintered in this State. Scouting late in the season revealed light to medium infestations in all counties surveyed. At the time of the last survey, in October, probably every county in the State was infested. County agents and others reported that the peak of the infestation throughout Oklahoma occurred in September, when the incidence was approximately 1 to 1.5 percent of the total domestic-animal population. It is common almost every year for every county in Oklahoma to be infested with screw-worms.

South Dakota -- Contacts with State and Extension personnel and scouting in the area where the heavy screw-worm outbreak occurred last year indicated no infestations in the State up to the last of July. Late in October H. C. Severin, head of the Entomology-Zoology Department of the South Dakota State College at Brookings, reported that larvae removed from wounds of domestic animals and identified by him revealed that Callitroga americana was present in Ziebach, Sully, Hughes, Jones, Hanson, McCook, and Hutchinson Counties. The infestations in the first four counties were in the same area in which the 1949 outbreak occurred. Dr. Severin stated that all the cases of screw-worms occurred in September and early October and that the heaviest infestation this year was around Emery in Hanson County. Cold spells during the latter part of October stopped activity of the fly in all counties.

Texas -- The early survey in Texas indicated that it was necessary to survey most of the State because of the tremendous area in which the fly survived. Usually the screw-worm fly overwinters in only about 15 to 20 counties in the southernmost part of the State, whereas last winter the fly was found to breed all winter in 132 counties. The overwintering area extended north to the Oklahoma State line in central north Texas, or approximately 300 miles farther north than usual, and also about 200 miles farther northwestward than during previous years. Subsequent reports from various sources confirmed the presence of screw-worms in every county in Texas before midsummer. In October, when a few counties in southeast Texas were surveyed, heavy infestations were still present in all counties scouted. Screw-worms were active up to about December 1 in the vicinity of Kerrville, Tex., but not later. It is indicated, therefore, that the overwintering area of the fly will again be confined to the southernmost counties in Texas and comparable in extent to that of previous normal winters.

Screw-worm Remedies -- Ample supplies of smear 62 and various proprietary remedies were found on the local market in all States in the western region. Reports received from manufacturers of screw-worm remedies indicated a heavy demand for smear 62 in the western region, but particularly in Texas and Oklahoma. The Department of Agriculture's new screw-worm remedy EQ-335 (U.S. Bur. Ent. and Plant Quar. 1951), which was announced on October 23, was used by several ranchmen in Texas late in the season. The results were greatly superior to those obtained with smear 62 or any other remedy previously available.

Reports from manufacturers and livestock owners indicate that this new remedy will be in great demand during the next season in the western part of the United States.

#### Literature Cited

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